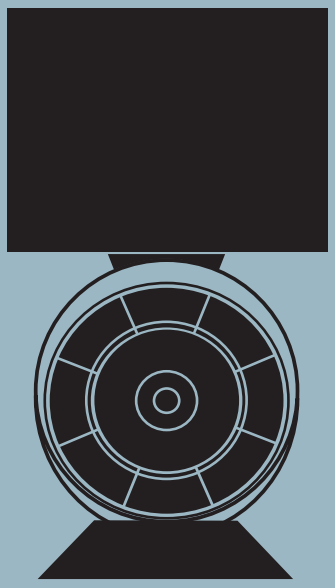
Beo5

Type 1682 – 1688, 1692

Service Manual
English

German, French, Italian, Spanish, Danish, Dutch, Japanese and Simplified Chinese versions are available in the Retail System



This Service Manual must be returned with the defective parts/back-up suitcase !

BANG & OLUFSEN

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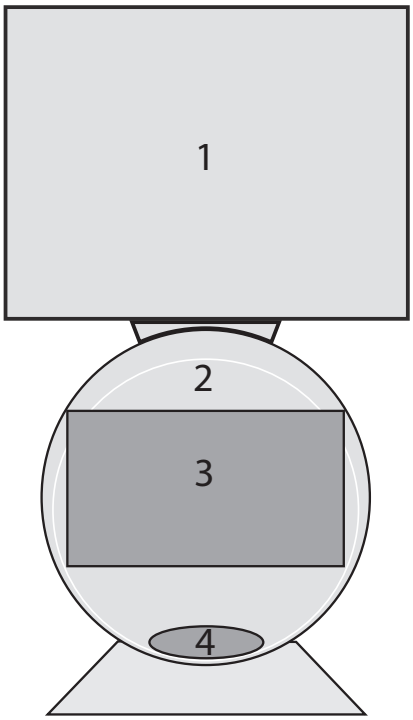
Survey of modules



Module 1	Display
Module 2	Keypad
Module 3	Battery
Module 4	Adaptor, interface

How to service

Front line service

The overall service strategy is to service 95% of all products in the customer's home. The defective module must be exchanged and the Back-up suitcase must be sent to module service in Struer.

Beo5 will be serviced on module level only as described in the Service Manual. A Back-up suitcase will be offered for this product. The only way to repair the hardware (HW) is to order a Back-up suitcase and replace the defective module. Only the necessary information on how to dismantle/assemble, fault-find on module level, replace and adjust electronics/mechanics will be described.

As a simple stand-alone product, it is expected to be serviced for 12 years on vital parts after the last product has been produced and sold in the same season.
Service possibilities:
If the Beo5 software is to be updated, the Beo5 configuration tool must be used. It is important to bring a laptop to the customer's home in case of a service visit. Remember to store the specific customer profile locally on the laptop before making the visit.

Recommended assisting tools

Beo5 configuration tool.

Other service issues

This product does not have pincode protection.

Service documentation

Service documentation for Beo5 will be a Service Manual with part nos. for the Back-up suitcase, electrical and mechanical parts, user's guides, etc.

Variants of mains adaptors

The Beo5 has only one variant for all markets.
The mains adaptor has separate type nos. for each market, due to country approvals.

The only variant on the Beo5: 1682

The variants on the mains adaptors:

Type number	Variants	Markets
1683	EU	Austria, Azerbaijan, Belgium, Bulgaria, Chile, Croatia, Czech Repub., Denmark, Egypt, Estonia, Faroe Islands, Finland, France, Georgia, Germany, Greece, Greenland, Holland, Hungary, India, Indonesia, Iceland, Israel, Italy, Kazakhstan, Kuwait, Latvia, Liechtenstein, Lithuania, Lebanon, Luxembourg, Morocco, Norway, Oman, Pakistan, Peru, Poland, Portugal, Romania, Russia, Serbia, Singapore, Slovak Repub., Slovenia, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, Uruguay, Uzbekistan
1684	GB	Bahrain, Botswana, Dubai, Ghana, Ireland, Hong Kong, Malaysia, Nigeria, Qatar, Saudi Arabia, South Africa, United Arab Emirates, United Kingdom
1685	US	Brazil, Caribbean Islands of the Dominican Republic, Canada, Japan, Mexico, Panama, St. Martin, Taiwan, USA
1686	AUS	Australia, New Zealand
1687	KOR	Korea
1688	CN	China
1692	AR	Argentina

Warnings

ESD

When electrical replacements or disassembly is taking place, use an ESD-mat. The internal electronics are very sensitive to static electricity.

The core in the microprocessor is powered with only 1.8 Volts, so it is very important that handling of Beo5, when disassemblied, is done with great care according to static electricity.

Lithium battery

ADVARSEL
LITHIUMBATTERI - EKSPLOSIONSFARE
UDSKIFTNING MÅ KUN FORETAGES AF EN SAGKYNDIG
OG SOM BESKREVET I SERVICE MANUAL
WARNING
LITHIUM BATTERY - RISK OF EXPLOSION
TO BE REPLACED BY QUALIFIED SERVICEMAN ONLY
AND AS DESCRIBED IN THE MANUAL

Warning !
Short-circuit and overcharging of some types of lithium batteries may result in a violent explosion.

Cleaning

Clean the Beo5 surfaces using a lint-free cloth which you have wrung firmly in lukewarm water.

Never use alcohol or other solvents to clean any parts of the Beo5.

Service Menu

Service menu in general

The Menu Overview appendix provides an overview of the menus as they appear in the Software. The menu items are generally self-explanatory so you can gain a general overview by studying this page closely. For an overview of the menus please refer to page 2.2.

Access to service menu

The service menu must be activated while the setup menu is displayed. To acces the 'Digits' press the '+´ field on the screen. From this initial state, the service menu is activated by pressing **0 0 GO** within 3 s.

Deactivating service menu

When you exit the service menu (by pressing 'Back' on keyboard or on the screen) to standard menu operation, the device is in normal mode.

Navigation

Beo5	Possible actions
Hard Keys:	
OK/Enter	Selects the submenu that a cursor is on - accepts a menu, which results in values entered being saved
^	Moves the cursor bar up
v	Moves the cursor bar down
<	Moves the cursor bar left
>	Moves the cursor bar right
BACK	Returns to previous menu step
Soft Keys:	
Digit ('+')	Opens the 'soft digit area' on the screen
↩	Returns to previous menu step
⌓	Scene selection

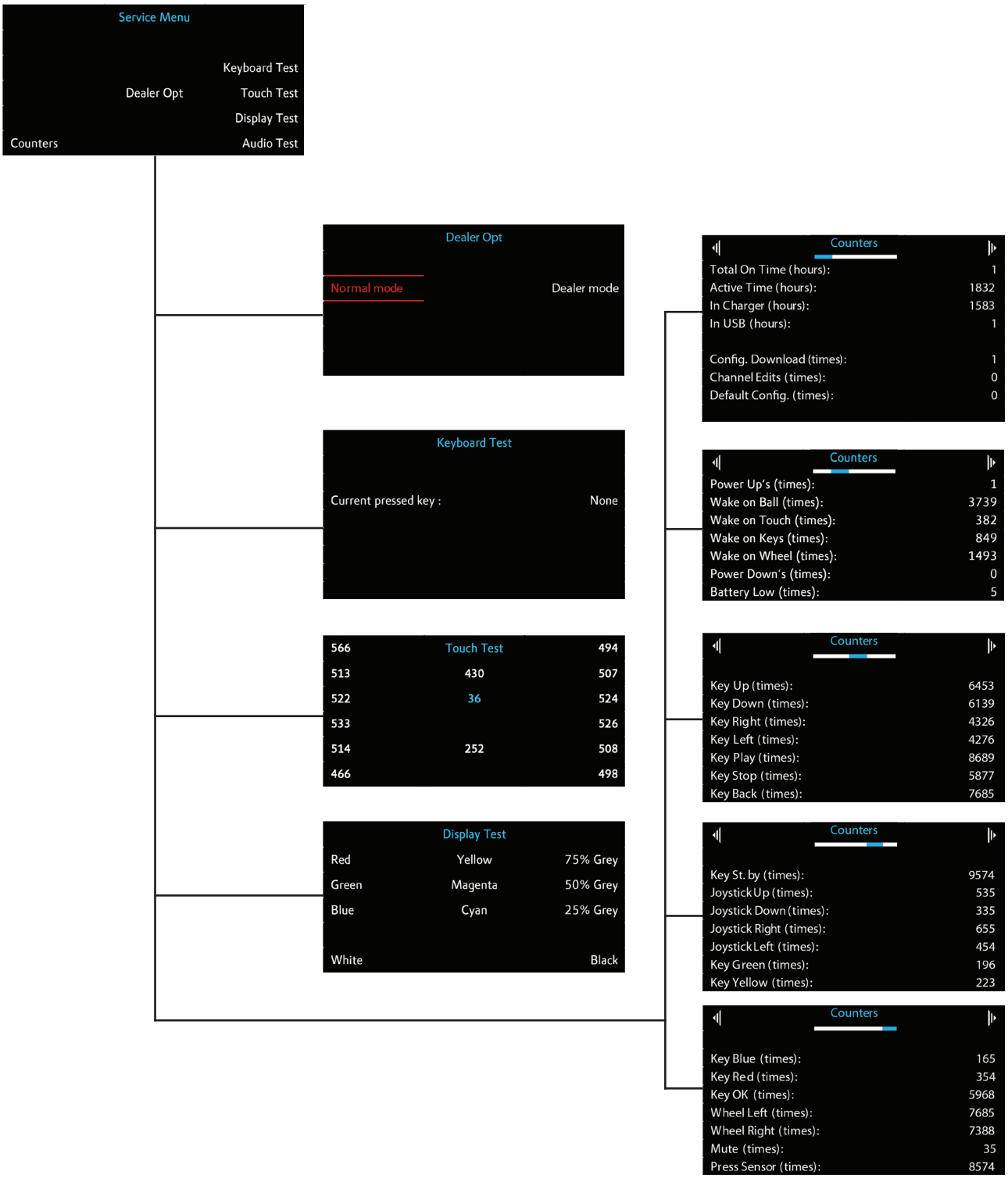
Service menu

This menu is used to select the device area in which service is to be carried out/ information is to be sought.
The contents of the menu depend on the sources installed.

Monitor service menu

Access to the monitor's underlying service menus.

Menu Overview



Dealer Opt

Dealer Option:
In this mode it is possible to determine the IR-transmission strength of the Beo5. The two options are:

- Normal mode: All IR transmission will be done according to the configuration.
- Dealer mode: All IR transmission will only be with low range.

The choice is stored in the flash when pressing the 'BACK' key (3 times to reach normal mode).

Keyboard Test

In this test menu it is possible to perform a test for each of the 17 hard keys. The key pressed is displayed on the screen.
The test is cancelled by pressing the 'BACK' key (3 times to reach normal mode).

Touch Test

The Touch Test is developed to test the touch display area. The test is activated by pressing 'Touch Test' in the service menu and has to be performed without touching the display. When the test is activated, white decimal numbers are shown for each display area. As long as all numbers are white, the test is OK. Only if any of the values are displayed in red, the test is failed.
Note! The value turns red when you press the display harder than usual.

Note! The blue value in the centre of the screen presents the light sensor value and indicates the light intensity.

Display Test

The display test provides 11 test pictures to be shown on the display. In this way, it is possible to determine if there are any pixel errors on the TFT panel. There may not be any pixel errors at all (constantly illuminated or constantly off pixels)

The test pictures are:

- Red
- Green
- Blue
- White
- Yellow
- Magenta
- Cyan
- 75% Grey
- 50% Grey
- 25% Grey
- Black

The test page is cancelled by pressing the 'BACK' key (3 times to reach normal mode).

Counters

The counters menu contains information referring to the usage pattern of Beo5. The information is displayed on 5 pages, to navigate between page 1-5 use the ◂ or ▸ softkey on the screen.
The counters page is cancelled by pressing the 'BACK' key (3 times to reach normal mode).

Fault flow chart

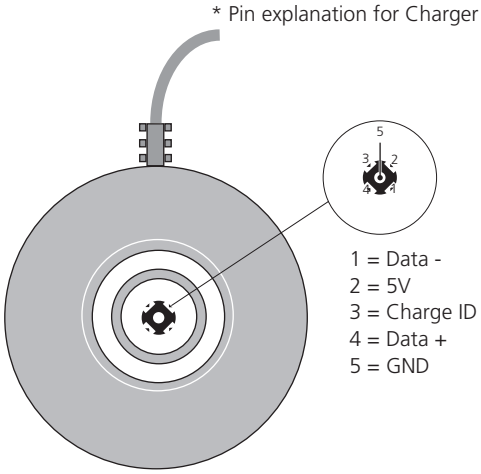
Fault symptom:
No operation
No back light
No key illumination

Possible causes:
Defective battery
Defective Charger -> low battery
Defective keypad
Defective Display

No

Yes

* Pin explanation for Charger



Confirm the battery is fully charged (2.4V VBAT on Keypad*, P2 pin 1) OK?

Place Beo5 in charger. Confirm that 'Charging' appears on the Display OK?

Remove Beo5 from charger and confirm by measuring, 5V at Charger* OK?

Replace Adaptor OK?

Replace Charger

Wait for Beo5 to recharge battery OK?

Disconnect battery. Place Beo5 in charger. Confirm that Display turns on OK?

Replace Keypad OK?

Replace Display

Replace battery

Press OK key for at least 2 sec. and confirm Beo5 illuminate the Display OK

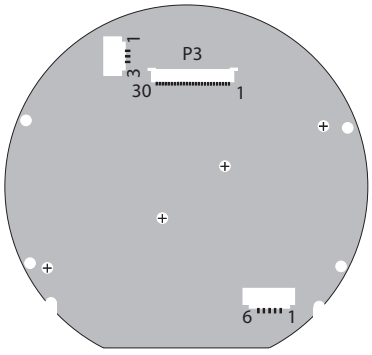
Place Beo5 in Charger. Confirm that 'Charging' appears on the Display OK?

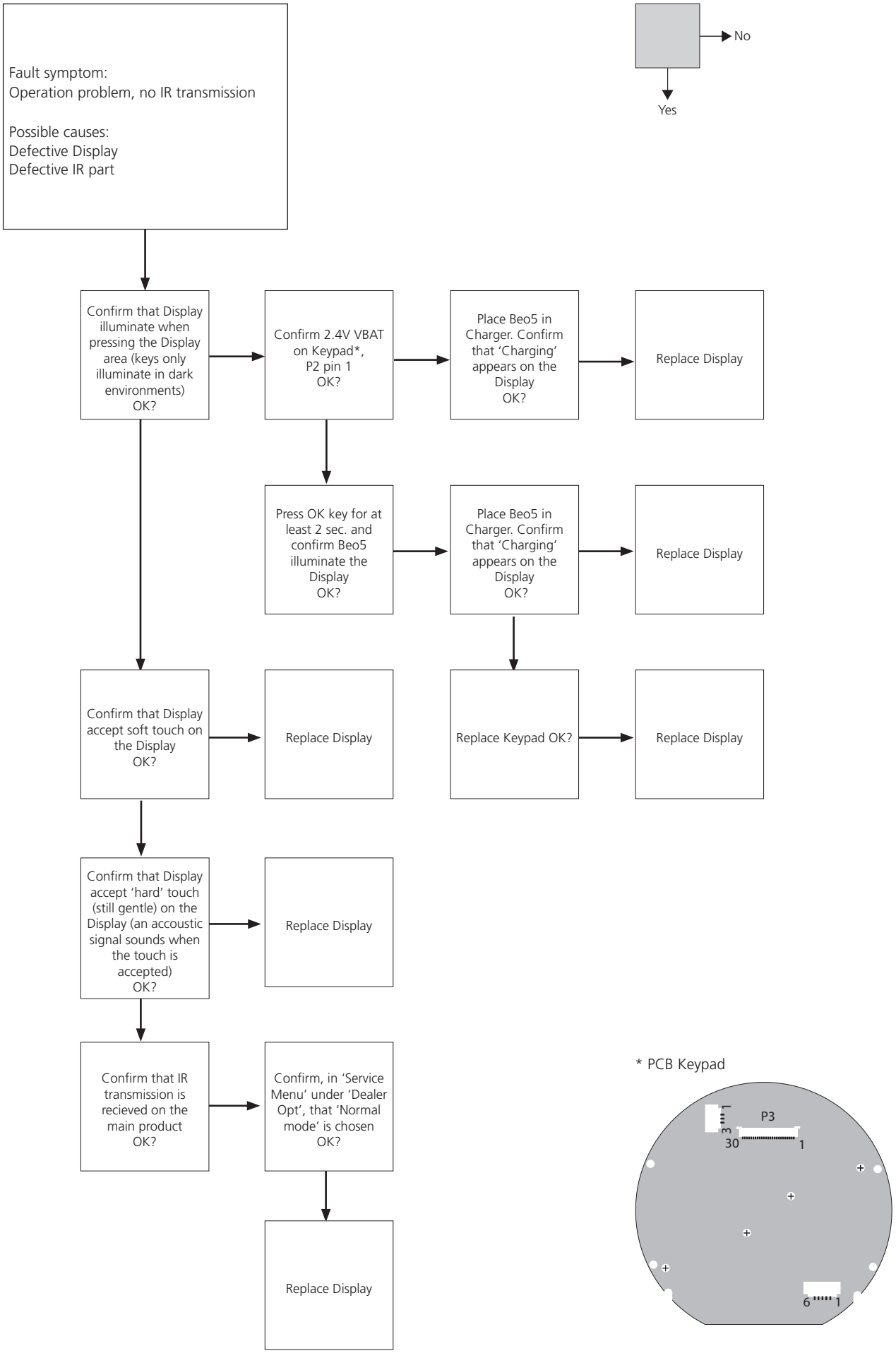
Replace Display

Replace Keypad OK?

Replace Display

* PCB Keypad




No
Yes
Fault symptom:
Operation problem, no IR transmission
Possible causes:
Defective Display
Defective IR part
Confirm that Display illuminate when pressing the Display area (keys only illuminate in dark environments) OK?
Confirm 2.4V VBAT on Keypad*, P2 pin 1 OK?
Place Beo5 in Charger. Confirm that 'Charging' appears on the Display OK?
Replace Display
Press OK key for at least 2 sec. and confirm Beo5 illuminate the Display OK?
Place Beo5 in Charger. Confirm that 'Charging' appears on the Display OK?
Replace Display
Confirm that Display accept soft touch on the Display OK?
Replace Display
Replace Keypad OK?
Replace Display
Confirm that Display accept 'hard' touch (still gentle) on the Display (an accoustic signal sounds when the touch is accepted) OK?
Replace Display
Confirm that IR transmission is recieved on the main product OK?
Confirm, in 'Service Menu' under 'Dealer Opt', that 'Normal mode' is chosen OK?
Replace Display
* PCB Keypad
P3
30
1
6
1

Adjustment

Back light settings

It is possible to determine the time-out period for the back light. There are two back light settings, one for the 'dimming period' and one for the 'off period'.
To acces the setting, press 'standby' and 'ok/enter' simultaneously to invoke 'SETUP' menu, and then press 'SETTINGS' and 'BACKLIGHT' on the screen.

The settings are:

- Dim: 5 sec. 10 sec. 20 sec.
- Off: 15 sec. 30 sec. 60 sec.

Press 'Store' on the screen to save the setting
The SETUP page is cancelled by pressing the 'BACK' key (3 times to reach normal mode).

Restore

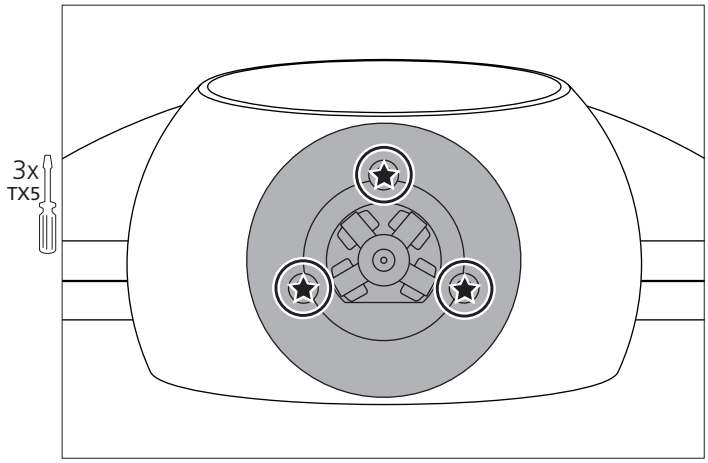
To restore back light settings to default, invoke SETUP menu and press SETTINGS RESTORE on the screen.

IR transmission strength

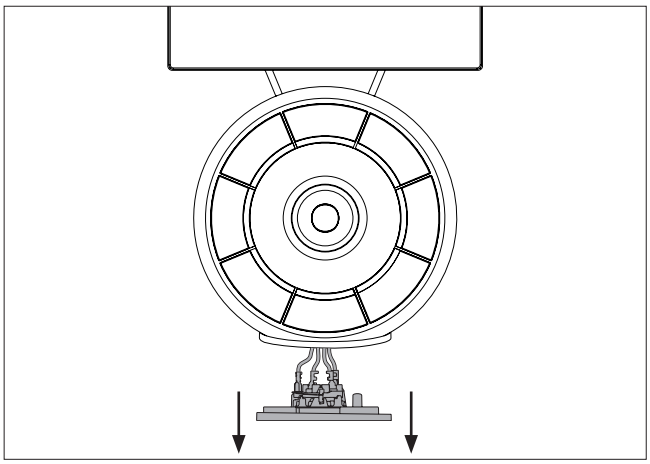
For this adjustment, please refer to 'Dealer Opt', see page 2.3.

Replacement of Keypad

- Remove screws

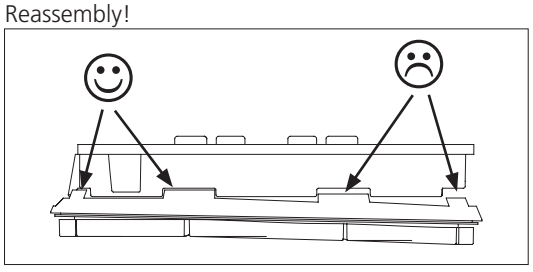


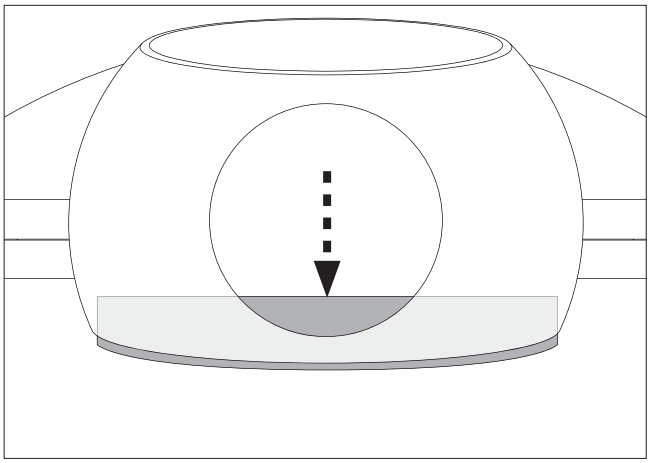
- Pull down Adaptor, interface



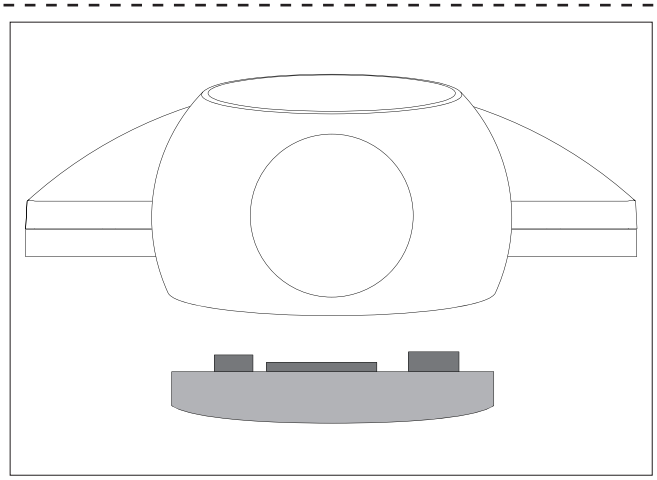
- Gently push down Keypad

Reassembly!



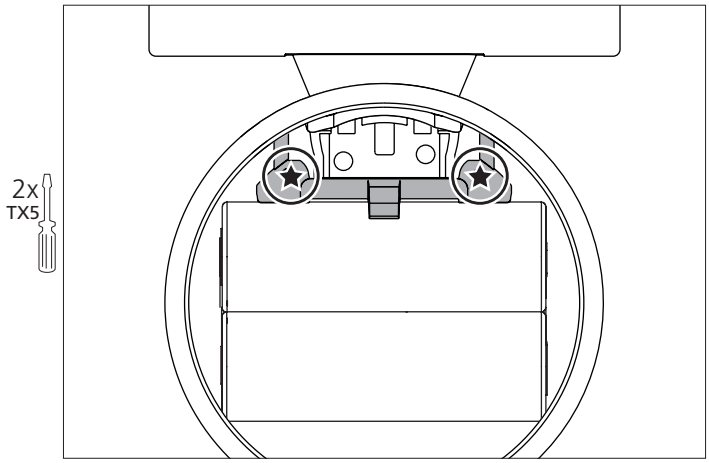


- Remove cables

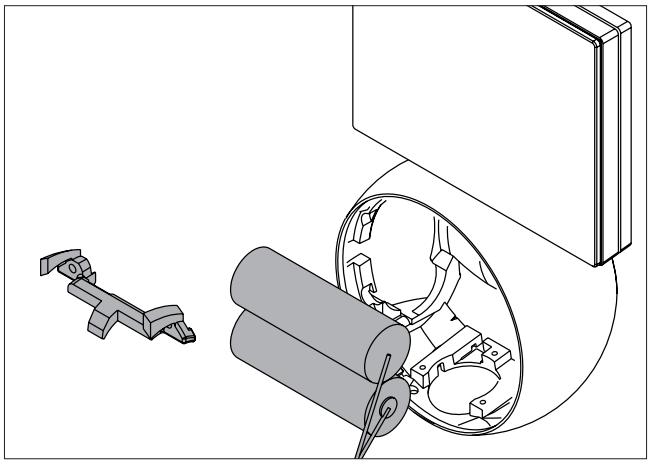


Replacement of display

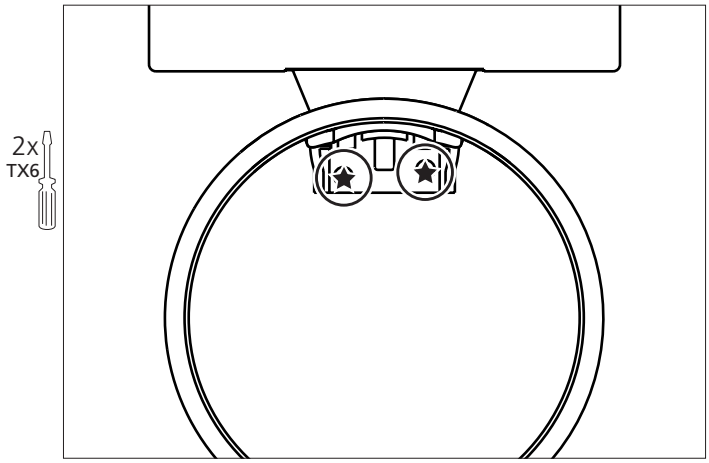
- Remove screws for clips for battery



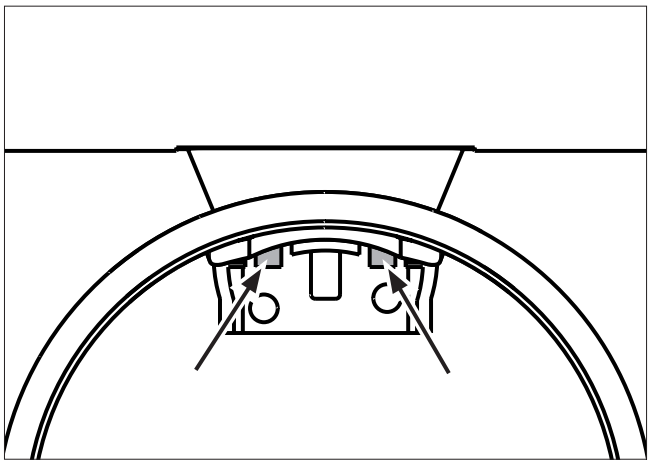
- Remove clips and battery



- Remove screws for display

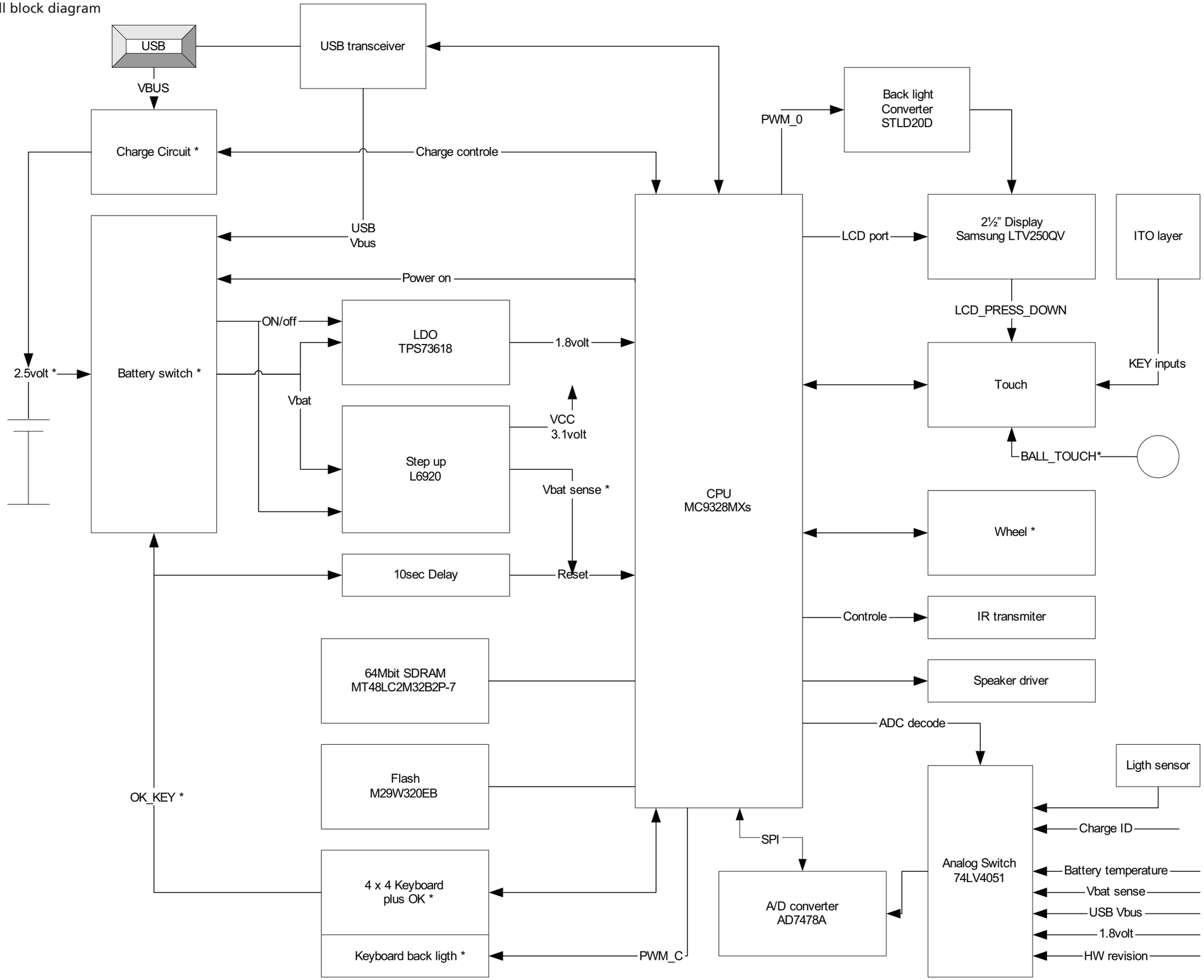


- Remove display by releasing snaplocks



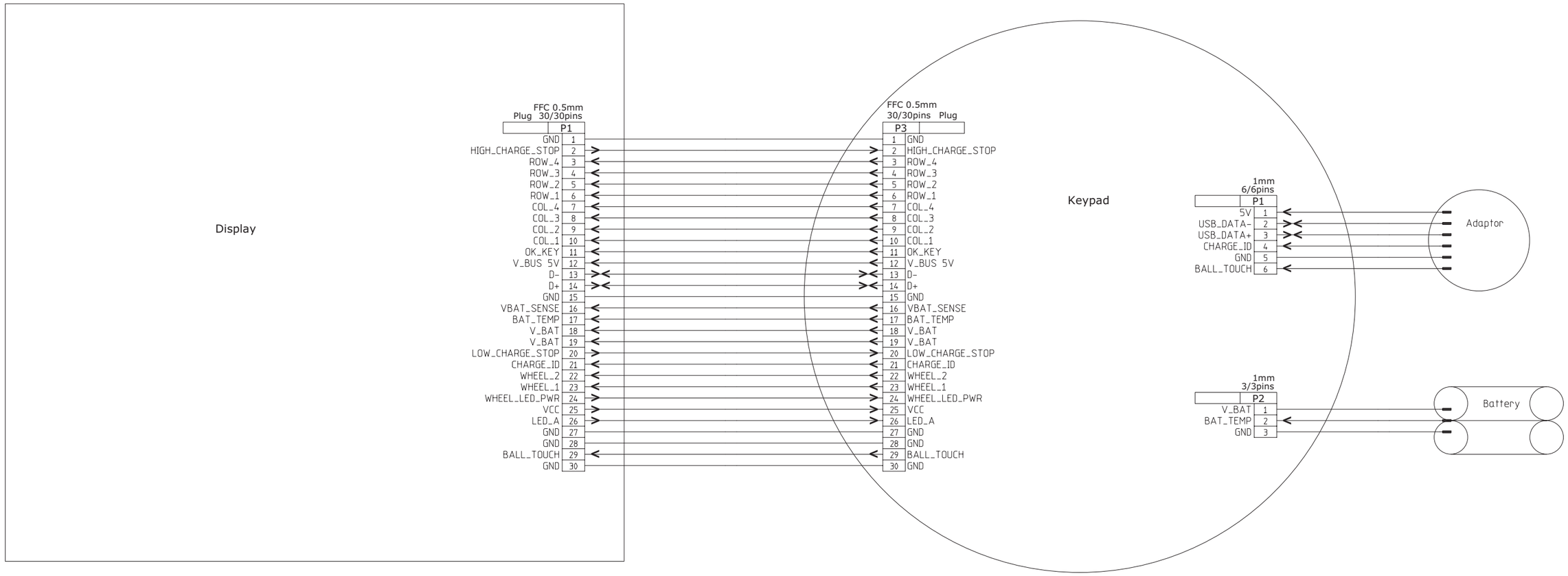
Specification guidelines for service use	Beo5
Design	David Lewis
Type	System Terminal (one-hand operated)
Beo5 – type no.	1682 (for all markets)
Table charger – type no. * see page 1.3 (how to service) for further info	1683 (EU), 1684 (GB), 1685 (US), 1686 (AUS), 1687 (KOR), 1688 (CN), 1692 (AR)
Dimensions (W x H x D) / Weight	69mm x 116mm x 32mm / 205g +/- 5g (0,452Lbs.)
CPU	Freescale MC9328MXS
CPU speed	96 MHz, 16MHz (standby)
Battery capacity	1350 mAh, 2.5V
Standby	12 days
Active use time	18 hours (typically), 3 hours (continously)
Charging time	5 hours
Hard keys	17 + wheel
Soft keys	17
Languages	Multiple, 8 languages
Power consumption charger:	
- when Beo5 in charger	2.7W
- when Beo5 in charger (Beo5 fully charged)	1.3W
- charger without Beo5	0.2W
Adaptor charging	5V, 400mA +/- 10%
USB charging	5V, 90mA
Power management:	
Wake-up	Alu-ball touch, key-press, display press, wheel activation, placing in charger
Power down	Timeout - follows back light
Power on	Centre key activation, placing in charger
Power off	Long press on centre key, low battery capacity (<10%)
Operating temperature range	0 °C – 50 °C (32 °F – 122 °F)
IR	
Range	455 KHz and 2080 KHz
Diodes	3
Transmitting	800mA (normal), 20mA (low power mode), 300mA (non-B&O mode)
Back light	
Colour	White
Intensity	Automatic adjusted to ambient light
Timeout	2 steps - dim and fadeout
Display	
Type	2.5" colour TFT, Delta-RGB, 234x960 pixels, normal black
Colour	16,777,216 colours
Contrast ratio	500 @ 25C (typ)
Back light	Adaptive
Viewing angle	160° - 160° (Horizontally - Vertically)
Subject to change without notice	

Overall block diagram



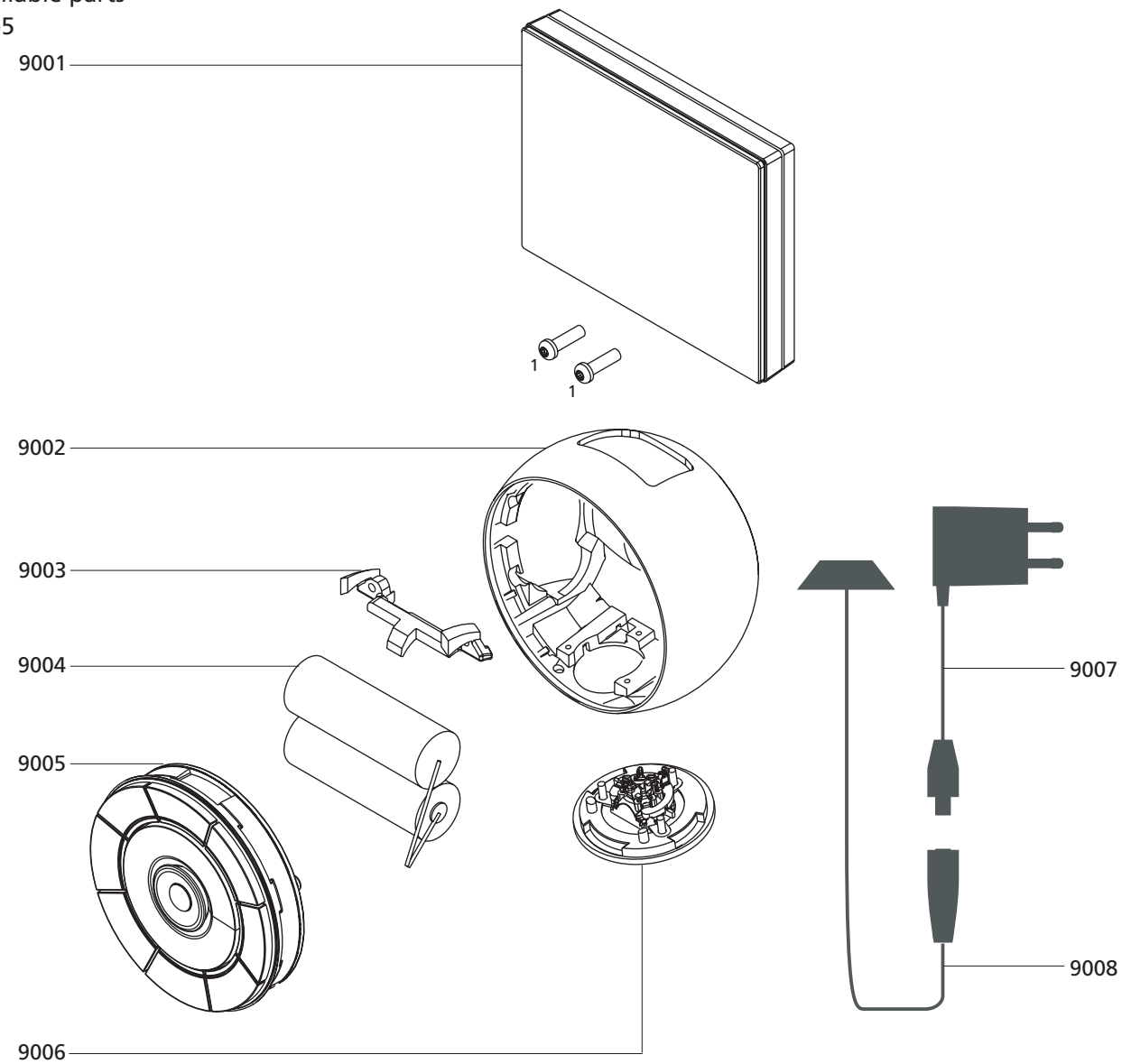
* Items placed on Keypad

Wiring diagram



Available parts

Beo5



9001	8053177	Display, complete
9002	3160426	Aluminium cover
9003	2311013	Clips f/battery
9004	8700091	Battery
9005	8003626	Keypad
9006	3152499	Adaptor, interface
9007	8040141	Mains adaptor, EU
	8040142	Mains adaptor, UK
	8040143	Mains adaptor, US
	8040144	Mains adaptor, CN
	8040145	Mains adaptor, AUS
	8040146	Mains adaptor, KOR
	8040147	Mains adaptor, AR
9008	8003769	Charger
1	2011048	Screw 2.5 x 8mm
	3393072	Packing, complete
	3391125	Outer carton
	3395324	Back-up suitcase

Available documentation

See Retail Ordering System

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